

Patent
Serial No. 10/551,022
Appeal Brief in Reply to Final Office Action of October 15, 2008,
and Advisory Action of December 15, 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of
DAVID A. FISH

Atty. Docket
GB 030037

Confirmation No. 8258

Serial No. 10/551,022

Group Art Unit: 2629

Filed: SEPTEMBER 29, 2005

Examiner: MCCOMMAS, S.S.

Title: ELECTROLUMINESCENT DISPLAY DEVICES

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Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant herewith respectfully presents a Brief on Appeal as follows, having filed a Notice of Appeal on December 15, 2008:

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of record Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-13 are pending in this application. Claims 1-13 are rejected in the Final Office Action mailed in October 15, 2008. This rejection was upheld, in the Advisory Action that was mailed on December 15, 2008. Claims 1-13 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellant filed on December 12, 2008 an after final amendment in response to a Final Office Action mailed October 15, 2008. The after final amendment did not include any amendments. In an Advisory Action mailed on December 15, 2008, it is indicated that the after final amendment filed on October 15, 2008 does not place the application in condition for allowance. This Appeal Brief is in response to the Final Office Action mailed October 15, 2008, that finally rejected claims 1-13, which remain finally rejected in the Advisory Action mailed on November 15, 2008.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example, as recited in independent claim 1, is directed to an active matrix electroluminescent display device comprising an array of pixels 10, shown in FIGs 1 and 3.

As shown in FIG 3 and described from page 10, line 18 to page 11, line 16 of the specification, each pixel 10 comprises an electroluminescent display element 20; a drive transistor 22 for driving a current through the display element; a storage capacitor 24 for storing a voltage to be used for addressing the drive transistor; and a discharge photosensitive element 34 for discharging the storage capacitor in dependence on the light output of the display element. A further photosensitive element 40 is provided which is shielded (e.g., by a light shield 44 shown in FIGs 3 and 4-5) from light emitted by the display element 20 while being exposed to light from other directions, and which is connected so as to cancel photocurrents produced in the discharge photosensitive element 34 by light from the other directions.

The present invention, for example, as recited in claim 3, is

directed to a display device shown in FIG 3 and described on page 10, line 18 to page 11, line 16. As shown in FIG 1, the display device comprises a discharge photosensitive element 34 which is connected in parallel with the storage capacitor 24 between the power supply line and the gate of the drive transistor 22. The display device also includes a further photosensitive element 40 which is connected in series with the discharge photosensitive element 34, between the gate of the drive transistor 22 and a reference potential 42, which may be shared by all pixels in the same row, as described on page 11, line 17.

The present invention, for example, as recited in claim 8, is directed to a display device shown in FIG 3 and described on page 10, line 18 to page 11, line 16. As shown in FIG 1, the display device comprises a pixel, such as the discharge photodiode 34, and an address transistor 26 connected between an input signal line 14 and an input to the pixel 34 coupled to a node between the storage capacitor 24 and the gate of the drive transistor 22.

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GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-2 and 8-9 of U.S. Patent Application Serial No. 10/551,022 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2001/0055008 (Young) view of U.S. Patent No. 4,760,389 (Aoki) and U.S. Patent No. 6,320,325 (Cok).

Whether claims 3-7 and 10 of U.S. Patent Application Serial No. 10/551,022 are unpatentable under 35 U.S.C. §103(a) over Young in view of Aoki, Cok and U.S. Patent No. 5,838,308 (Knapp).

Whether claims 11-13 of U.S. Patent Application Serial No. 10/551,022 are unpatentable under 35 U.S.C. §103(a) over Young in view of Aoki, Cok and U.S. Patent Application Publication No. 2004/0017162 (Sato).

ARGUMENT

Claims 1-2 and 8-9 are said to be unpatentable over Young, Aoki and Cok.

Appellant respectfully requests the Board to address the patentability of independent claim 1, as well as address the patentability of dependent claims 3 and 8, and further claims 2, 4-7 and 9-13 as depending from independent claim 1, based on the requirements of independent claim 1. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, Appellant herein specifically reserves the right to argue and address the patentability of claims 2, 4-7 and 9-13 at a later date should the separately patentable subject matter of claims 2, 4-7 and 9-13 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of independent claims 1, 3 and 8 is not intended as a waiver of Appellant's right to argue the patentability of the

further claims and claim elements at that later time.

Young is directed to matrix array display devices with light sensing elements and associated storage capacitors. As clearly shown in FIG 2, each pixel or display element 20 has single light sensing element 40 associated therewith. Further, as correctly noted on page 3 of the Final Office Action, Young does not disclose or suggest a further photosensitive element which is shielded from light emitted by the display element. Aoki and Cok are cited in an attempt to remedy the deficiencies in Young.

Aoki is directed to a transmitting type display device that includes a single detector, namely, an ambient light detector 17 formed on a rear transparent substrate 12 shown in FIG 1. As described on column 2, lines 59-62, a light-blocking layer 23 is formed on the back surface of the rear transparent substrate 12 such that it faces the ambient light detector 17. The light-blocking layer 23 serves to block light from the back side.

Cok is directed to an emissive display with luminance feedback from a representative pixel. A single photosensor 21 is located on the display device and optically coupled to the representative

light emitting pixel. A signal detected by the photosensor 21 is used to provide feedback to modify signals driving the display.

In summary, each of Young, Aoki and Cok discloses only a single photosensor or detector.

It is respectfully submitted that Young, Aoki, Cok, and combinations thereof, do not disclose or suggest the present invention as recited in independent claim 1 which, amongst other patentable elements, recites (illustrative emphasis provided):

a discharge photosensitive element for discharging the storage capacitor in dependence on the light output of the display element; and
a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions, and which is connected so as to cancel photocurrents produced in the discharge photosensitive element by light from the other directions.

Two photosensitive elements, where one is for discharging the storage capacitor in dependence on the light output of the display element, and another is for canceling photocurrents produced in the discharge photosensitive element by light from the directions other than from the display element, are nowhere disclosed or suggested in Young, Aoki and Cok, alone or in combination. Rather, Young,

Aoki, Cok merely disclose a single photosensor.

Surely if it was obvious to provide two photosensitive elements, as recited in independent claims 1, then Young, Aoki or Cok would have disclosed or suggested so. Without using the present application as a road map to reconstruct the present invention, and without the benefit of impermissible hindsight, one skilled in the art would not arrive in an obvious manner to the present invention from the disclosures of Young, Aoki and Cok. Knapp and Sato are cited to allegedly show other features and do not remedy the deficiencies in Young, Aoki and Cok.

Assuming, arguendo, that the combination of Young, Aoki and Cok discloses two photosensitive elements, such a combination would include the shield 23 disclosed in Aoki. However, as clearly shown in FIG 1 of Aoki, the shield 23 blocks light from the light source 15 that "illuminates the back surface of the display panel 11". (Aoki, column 2, lines 34-35) That is, the Aoki shield 23 does NOT block any light from the Aoki display 11, or from liquid crystal 51 sealed between the rear and front substrates 12, 13.

With regard to Cok, there is no disclosure or suggestion of

any shield. As clearly shown in FIG 2 of Cok, transparent contact layers 46, 48 are located between the photosensor layer 50 and an emissive layer 44 of a pixel 20. Cok merely de-energizes the emissive layer to measure ambient light, instead of shielding any light from the pixel 20.

Thus, even if the combination of Young, Aoki and Cok discloses two photosensitive elements, such a combination does not disclose or suggest "a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions," as recited in independent claim 1.

Accordingly, it is respectfully submitted that independent claims 1 is allowable. In additions, claims 2 and 8-9 are allowable at least based on their dependence from independent claim 1.

Dependent claim 8 also includes patentable subject matter. In particular, Young discloses in FIG 2 a display element 20 connected between the source or drain of a drive transistor 22 and a voltage supply line 30. In Young, it is the light sensing element 40 which is connected between a common current line 32 and a node of the

gate of the drive transistor 22 and storage capacitor 36.

In stark contrast, the present invention as recited in claim 8, amongst other patentable elements recites (illustrative emphasis provided):

wherein the pixel further includes an address transistor (26) connected between an input signal line and an input to the pixel coupled to a node between the storage capacitor and the gate of the drive transistor.

A pixel, such as the discharge photodiode 34 shown in FIG 3, which coupled to a node between the storage capacitor 34 and the gate of the drive transistor 22 is nowhere disclosed or suggested in Young, Aoki, Cok, and combinations thereof.

Claims 3-7 and 10 are said to be unpatentable over Young, Aoki, Cok and Knapp.

Dependent claim 8 also includes patentable subject matter. In particular, as described on column 5, lines 22-35 and shown in FIG 2 of Knapp, Knapp discloses a drive transistor TFT 20 connected with a liquid crystal display element 21. A photosensitive resistor 28 and a light shielded resistor 29 are connected in

series, where the photosensitive resistor 28 is connected between the gate and source of a further TFT 27 that acts as a switch. The light shielded resistor 29 is connected between the gate and drain of a further TFT 27. That is, any series connected elements do NOT include the display element 21. Further, the series connected elements are not connected between two power supply lines.

In stark contrast, the present invention as recited in claim 8, recites (illustrative emphasis provided) :

wherein the discharge photosensitive element is connected in parallel with the storage capacitor between the power supply line and the gate of the drive transistor, and wherein the further photosensitive element is connected in series with the discharge photosensitive element between the gate of the drive transistor and a reference potential.

A discharge photosensitive element which is connected in series with a further discharge photosensitive element, which are commonly connected the gate of the drive transistor, where one connected to a power supply line, while the other is connected to a reference potential, are nowhere disclosed or suggested in Young, Aoki, Cok, Knapp, and combinations thereof. Rather, Knapp disclosed that one end of the photosensitive resistor 28 is

connected between the source and gate of a TFT switch 27, and is
NOT connected to any power supply line.

Further, it is respectfully submitted that claims 3-7 and 10 should be allowed at least based on their dependence from independent claim 1.

Claims 11-13 are said to be unpatentable over Young, Aoki, Cok and Sato.

It is respectfully submitted that claims 11-13 should be allowed at least based on their dependence from independent claim 1.

In addition, Appellant denies any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Appellant reserves the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

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CONCLUSION

Claims 1-13 are patentable over Young, Aoki, Cok, Knapp and Sato.

Thus, the Examiner's rejections of claims 1-13 should be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Previously Presented) An active matrix electroluminescent display device comprising an array of pixels, each pixel comprising:

an electroluminescent display element;

a drive transistor for driving a current through the display element;

a storage capacitor for storing a voltage to be used for addressing the drive transistor;

a discharge photosensitive element for discharging the storage capacitor in dependence on the light output of the display element; and

a further photosensitive element which is shielded from light emitted by the display element while being exposed to light from other directions, and which is connected so as to cancel photocurrents produced in the discharge photosensitive element by light from the other directions.

2. (Previously Presented) The display device according to
Claim 1, wherein the drive transistor is connected between a power
supply line and the display element.

3. (Previously Presented) The display device according to
Claim 2, wherein the discharge photosensitive element is connected
in parallel with the storage capacitor between the power supply
line and the gate of the drive transistor, and wherein the further
photosensitive element is connected in series with the discharge
photosensitive element between the gate of the drive transistor and
a reference potential.

4. (Previously Presented) The display device according to
Claim 3, wherein the reference potential is provided by a reference
potential line shared by other pixels.

5. (Previously Presented) The display device according to
Claim 4, wherein the pixels are arranged in rows and columns with

each row of pixels having a respective row address conductor via which the row of pixels is selected in a row address phase, and wherein the pixels of a row share a respective reference potential line, and wherein the reference potential line associated with a row of pixels comprises a row address conductor associated with an adjacent row of pixels.

6. (Previously Presented) The display device according to claim 1, wherein the discharge photosensitive element and the further photosensitive element comprise photodiodes.

7. (Previously Presented) The display device according to claim 1, wherein the discharge photosensitive element and the further photosensitive element comprise diode-connected transistors.

8. (Previously Presented) The display device according to claim 1, wherein the pixel further includes an address transistor (26) connected between an input signal line and an input to the

pixel coupled to a node between the storage capacitor and the gate of the drive transistor.

9. (Previously Presented) The display device according to claim 1, wherein the device comprises a substrate, active matrix circuitry comprising the pixel drive transistors, storage capacitors and photosensitive elements overlying the substrate, and wherein the pixel display elements comprise an electroluminescent layer overlying the active matrix circuitry.

10. (Previously Presented) The display device according to Claim 9, wherein the discharge photosensitive element and the further photosensitive element in each pixel are arranged close together.

11. (Previously Presented) The display device according to Claim 9, wherein the pixel display elements include a transparent conductive electrode layer between the electroluminescent layer and the active matrix circuitry, wherein a light shield is arranged in

each pixel between the further photosensitive element and the overlying electroluminescent layer to shield the further photosensitive element from light directly from the electroluminescent layer, and wherein the discharge photosensitive element is exposed to light generated in the overlying electroluminescent layer.

12. (Previously Presented) The display device according to Claim 11, wherein the pixel display elements include a light opaque electrode layer at the side of the electroluminescent layer remote from the active matrix circuitry.

13. (Previously Presented) The display device according to Claim 11, wherein the pixel display elements include a second transparent electrode layer at the side of the electroluminescent layer remote from the active matrix circuitry, and wherein a further light shield is arranged on the second transparent electrode layer and overlying the discharge photosensitive element of a pixel.

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EVIDENCE APPENDIX

None

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RELATED PROCEEDINGS APPENDIX

None